Ameya Khot

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Education

- **Texas A&M University - Kingsville** — Kingsville, TX
  Master of Science in Computer Science - GPA: 3.88/4.0 — *Aug. 2022 – Aug. 2024*
- **University of Pune** — Pune, India
  B.E. Computer Engineering — *May. 2020*

Professional Experience

- **Texas A&M University - Kingsville** — Kingsville, TX
  Graduate Research Assistant, Quantum Software Engineering — *Jan. 2023 - Present*
  - Collaboratively worked on several National Science Foundation-funded projects within an Agile research environment, ensuring timely and effective project iterations.
  - Spearheaded the design and optimization of Quantum and Quantum-Inspired Machine Learning algorithms to enhance cybersecurity measures, harnessing DWave quantum annealing technology. This initiative led to a significant improvement in algorithmic performance, quantified at a 15% increase in efficiency, and contributed to the publication of two research papers and a poster. Additionally, undertook a comprehensive comparative analysis with Classical Machine Learning algorithms, which substantiated the viability and advanced the application of quantum computing in addressing cybersecurity challenges.
  - **Technologies & Frameworks used:** Python3, Cython, Tensorflow, Tensorflow Quantum, scikit-learn, DWave-Ocean-SDK, Remote.it (Remote SSH chip access).
- **Conmove.io** — Pune, IN
  Software Engineer - Product Lead — *Feb. 2022 - Jul. 2022*
  - Led a 6-member team with direct communication with senior management, to achieve $52,000 in projected sales for FY 2022-23.
  - Developed Torch-based models for object detection and image segmentation, with a deployment pipeline on AWS EC2 instances using Torchserve.
  - Developed and implemented an advanced logging system to monitor inter-project communication, resulting in a 40% reduction of time in system failure tracking and a 15% increase in overall project efficiency.
  - Enhanced server security using JWT-based authorization middlewares.
  - Utilized Docker for efficient deployment on AWS EC2 with NGINX and SupervisorD for application monitoring.
  - **Technologies & Frameworks used:** Python3, Torch, Torchserve, AWS EC2, AWS S3, REST Services, MVC Architecture.

Publications

- A. Akash, **A. Khot**, T. Kim, "Quantum Annealing-Based Machine Learning for Battery Health Monitoring Robust to Adversarial Attacks", *IEEE Energy Conversion Congress and Exposition (ECCE)*, 2023.
- A. Akash, B. Ahn, A. Jenkins, **A. Khot**, L. Silva, H. Tavares-Vengas, T. Kim, "Smart Grid Device-Specific Malware File Detection using Quantum-Convolutional Neural Network with Deep Transfer Learning", *IEEE Design Methodologies Conference 2023*.

Projects

- **InTune**
  Tags: Node.js, Docker, REST, Socket Programming, Microservice Architecture, AWS
  - Engineered from the ground up to revolutionize music sharing, enabling live, interactive sessions across distances with advanced synchronization algorithms and socket programming. Integrated dynamic features to cultivate community engagement.
  - Designed a robust, microservice-oriented backend using Node.js, PostgreSQL, MongoDB, and GraphQL, optimized for efficient data handling. Deployed with Docker on AWS, demonstrating expertise in cloud solutions and modern DevOps practices for scalable app development.

Skills

- **Data Structures & Algorithms**
- **Programming Languages** : Java, Python, Javascript, C++
- **Web Technologies** : Spring, Springboot, Hibernate, Django, Flask, FastAPI, REST API
- **Databases** : MySQL, Postgresql, MongoDB
- **Cloud Technologies** : Docker, AWS - EC2, RDS, S3